

Work Order ID 60387

July 7, 2010 9:01:39 AM



Page 1

Item ID: D6104-005

Revision ID:

Item Name: Round Billet, 17-4

Start Date: 7/07/10 Start Qty: 10.00

Required Date: 7/22/10 Req'd Qty: 10.00

Reference:

Accept



Setup Start

Stop

Cust Item ID:

Customer:

Approvals:

Process Plan: CY

Date: 10/7/7 Tooling:

Date:

QC:

Date: SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D6104

Rev B

100



Purchasing

Purchasing

PURCHASING

0.00

Memo

0.00

Issue P/O: 12218 ☐ a) Description: S.S round, billet ☐ b) Ø4.00" x 5.10" long ☐ c) Tolerance on all dimensions are +0.030"/-0.000" ☐ d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) ☐ e) One blank makes 2 parts ☐ f) Material certification required

CY 10/7/18

110



Packaging

Packaging

Receive & Inspect for Damage & Mat'l Certs

0.00

Memo

0.00

Ensure material certification is attached

10/7/21 (10)

120



QC

Quality Control

QC6- Inspect dimensions to drawing

0.00

Memo

0.00

Ensure Material certification comply to Dwg D6104

10/07/22 10

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 60387

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Page 2

Item ID: D6104-005

Revision ID:

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Start Date: 7/07/10 Start Qty: 10.00

Required Date: 7/22/10 Req'd Qty: 10.00

Reference:

Accept



Setup Start



Stop



Cust Item ID:

Customer:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

Identify as per dwg & Stock Location: *CNC*

0.00

Packaging

Memo

0.00

SA 10/07/22

10

0

Packaging

140

QC21- Final Inspection - Work Order Release

0.00

QC

Memo

0.00

Quality Control

10/07/23

MF

10-7-22

W/O:			WORK ORDER CHANGES					
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

July 7, 2010 9:01:38 AM

Work Order ID: 60387

Parent Item: D6104-005

Parent Item Name: Round Billet, 17-4

Page 1

Start Date: 7/07/10

Required Date: 7/22/10

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP A: ☐01.05.08 ☐New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-005P 17-4 SS Roundbar 4.00"OD		Purchased	No			110	Each	0.0000	1	10			

SC 10/17/21 (10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

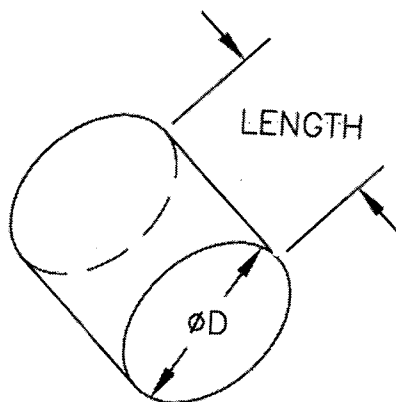
NOTE: Date & initial all entries



DESIGN F4	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED
02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 60387

CZ10/7/7

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

cmf
10/07/02

DART
aerospaceDart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053**PURCHASE ORDER**

Purchase Order ID PO12218

Purchase Order Date 7/08/10

PO Print Date 7/08/10

Page Number 1 of 1

Order From :

METAUX CASTLE

A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
CA

VC-MET001

Contact Name

Vendor Phone

514 694 9575

Vendor Fax

514 695 3281

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Ship To :

DART AEROSPACE LTD

1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA**FAKED**
07/01/10

e-mail invoice

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	D6104-005P	17-4 SS Roundbar 4.00"OD	7/23/10 Yes	10.00 Each	Yours ppd	\$78.0000	\$780.00

Special Inst:

AS PER DWG D6104 REV.B
B60387
MATERIAL: 17-4 PH AS PER AMS 5643
OR AISI 630
TOLERANCE ON ALL DIMENSION ARE
+0.030"/-0.000"
SIZE: 4.00" X 5.10" LONG*2010/7/22*

PO Total:

\$780.00

**MATERIAL CERTIFICATION
REQ'D UPON DELIVERY**

Change Nbr: 1

Change Date: 7/08/10

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Shipment No:419777

Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 21-JUL-10	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier LOCAL FLEET		BOL No 419777-3	

Shipment Details**Final Destination Branch - MON**

Order No 857140	Line No 1	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AISI 630,AMS 5643,ASME SA564,ASTM A564,UNS S17400				
Purchase Order No 12218		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 10 PCS		Invoice Qty 10 PCS	
Details							
Delivery No. 34620303	Mill	Heat Number 423013	Mech Id	PCS 10	Width (IN)	Length (IN)	Shipped Qty (LBS) 187.29

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

OK 10/07/22

**VALBRUNA**

SLATER STAINLESS, INC.
 2400 Taylor Street West, P.O. Box 630
 Fort Wayne, Indiana USA 46801
 Phone: 260-434-2892 Fax: 260-434-2906

Product Certification Report**Report Number: 4535900**

Certified on Apr 28, 2010 Page 1 of 2

Order I.D. 1000963 005		Order Date 4/08/10		Commodity Code 6304.0RT	
Dim 1 4.0000	Dim 2 .0000	Dim 3 .0000	Heat I.D. 423013	Customer I.D. 002472	Customer Purchase Order 26918
Product Shape Rounds			Product Surface HR & Rough Turned		Customer Grade 630
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 411913	Weight	

Ship To

VALBRUNA STAINLESS, INC
370 VILLAGE DRIVE
CAROL STREAM, IL. 60188

Sold To

VALBRUNA STAINLESS, INC.
370 VILLAGE DRIVE
CAROL STREAM, IL 60188

Lifts: 0046

API 6A	AISI 17400	EN 10204 3.1
UNS S17400		
AMS 5643R (except finish)	ASTMA 564-04 Type 630	ASTM A484-08
ASMESA-564-07		

CHEMICAL ANALYSIS

C	Mn	P	S	Si	Cr	Ni	Mo	Cu	N	Cb	Ta	Cb+Ta
.04	.59	.023	.022	.41	15.68	4.68	.18	3.37	.04	.23	.001	.23

BRINELL HARDNESS ASTM E10-08

HBW
 358

TENSILE PROPERTIES ASTM E8-08 CAPABILITY

Cap HB	TS (PSI)	.2%YS (PSI)	%EL(4d)	%RA	AGE(F)
400	205000	183000	15.8	50.4	900

MAGNETIC PARTICLE TEST

FREQ SEV

AVG .04 .02

MACRO ASTM E340-00/E381-01

MACRO
 OK
 OK
 OK

PERCENT FERRITE

% FERRITE

AVG .9

Reduction ratio 5 To 1 Min.

Electric Furnace melted; AOD refined.

Ultrasonic test OK.

Chemical testing performed to one or more of the following ASTM methods: E415-08, E572-02a, E1019-08, E1085-95,

Location of tensile fracture: inside middle of gage length.

Chemical Analysis performed at Acciaierie Valbruna, Italy.

No mercury or low melting alloy contamination. No weld repair.

Material melted in Italy, manufactured in the United States.

Results relate only to the items tested. Certification shall not be reproduced except in full, without written approval of Valbruna Stainless Inc. The recording of false, fictitious, or fraudulent statements on this document may be punished as a felony under federal statutes, including Federal law, Title 18, Chapter 47. Consult material safety data sheet (MSDS) for hazard info.

I hereby certify that the reported figures are correct as contained in the records of the corporation.

Manager Laboratory Services

Dennis Hackett

Dennis Hackett

po 62966-38

IC
H2464*10/07/22*

**VALBRUNA**

SLATER STAINLESS, INC.
2400 Taylor Street West, P.O. Box 630
Fort Wayne, Indiana USA 46801
Phone: 260-434-2882 Fax: 260-434-2805

Product Certification Report**Report Number: 4535900**

Order I.D. 1000963 005		Order Date 4/08/10	Commodity Code 6304.0RT			Certified on Apr 28, 2010		Page 2 of 2	
Dim 1 4.0000	Dim 2 .0000	Dim 3 .0000	Heat I.D. 423013	Customer I.D. 002472	Customer Purchase Order 26918				
Product Shape Rounds			Product Surface HR & Rough Turned			Customer Grade 630			
Length (Inches) 132.000 Min. 156.000 Max.			Bill of Lading # 411913	Weight					

Ship To

VALBRUNA STAINLESS, INC
370 VILLAGE DRIVE
CAROL STREAM, IL. 60188

Sold To

VALBRUNA STAINLESS, INC.
370 VILLAGE DRIVE
CAROL STREAM, IL. 60188

Material conforms to listed specifications and is DFARS compliant.
Quality system is compliant with ISO 9001:2000. Produced in accordance with EN 10204 3.1.

and
16/07/22

Castle Metals FP

HEAT NUMBER 423013
MECHANICAL ID _____
ITEM CODE 42464
LOT NUMBER _____
PO NUMBER 62966
RECEIPT DATE 6-16-2010
SUPPLIER VALBRUNA
SPECIFICATION _____
LCS no
COMMENT _____
APPROVED DL

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Manager Laboratory Services

Dennis Hackett
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